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IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

Claims 1-7 (Cancelled).

8. (New) A real-time process for controlling the torsional stability of a drivetrain of a helicopter, said helicopter comprising at least a power train including the drivetrain, with a main rotor, an anti-torque rotor as well as gearboxes and associated shafts, and an engine with a free turbine which provides motive energy for driving said main rotor and tail rotor of the drivetrain, the helicopter comprising a system to regulate the speed of the turbine engine and comprising at least;

a first means for acting on said speed, as a function of operating commands;

a second means for measuring a speed NTL corresponding to the speed of rotation of the free turbine of said engine;

a correction device for correcting said measured speed NTL into a corrected value NTLcorr;

third means for determining a preset value NTLpres corresponding to the preset value for the speed of rotation of the free turbine of the engine; and

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a computation unit for automatically computing, on the basis of said preset value NTL_{pres} and of said corrected value NTL_{corr} , the operating commands which are applied automatically to said first means, wherein:

said correction device implements a correction law which corrects said measured speed NTL to obtain, based upon the measured speed NTL of rotation of the free turbine of said engine by the second means, the corrected value NTL_{corr} exhibiting, at least in a frequency domain situated around at least a first torsional mode of said drivetrain, the same modulus as said preset value NTL_{pres} and a phase which is opposite to the phase of said preset value NTL_{pres} in such a way as to damp at least said first torsional mode of the drivetrain.

9. (New) A system for controlling the torsional stability of a drivetrain of a helicopter, said helicopter comprising at least a power train including the drivetrain, with a main rotor, an anti-torque rotor as well as gearboxes and associated shafts, and an engine with a free turbine which provides motive energy for driving said main rotor and anti-torque rotor of the drivetrain, said system comprising at least:

a first means for acting on the speed of the turbine engine, as a function of operating commands;

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a second means for measuring a speed NTL, corresponding to the speed of rotation of the free turbine of said engine;

a correction device for correcting said measured speed NTL into a corrected value NTLcorr;

third means for determining a preset value NTLpres corresponding to a preset value for the speed of rotation of the free turbine of the engine; and

a computation unit for automatically computing, on the basis of said preset value NTLpres and of said corrected value NTLcorr, the operating commands which are applied automatically to said first means, wherein:

said system both controls the torsional stability of the drivetrain and regulates the speed of the turbine engine; said correction device is connected by a link to the second means so as to implement a correction law which corrects said measured speed NTL to obtain, based upon the speed NTL of rotation of the free turbine of said engine transmitted to the correction device by the second means; said correction device outputs the corrected value NTLcorr exhibiting, at least in a frequency domain situated around at least a first torsional mode of said drivetrain, the same modulus as said preset value NTLpres and a phase which is opposite to the phase of said preset value NTLpres in such a way as to damp at least said first torsional mode of the drivetrain.

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10. (New) The system as claimed in claim 9, wherein said correction device corrects said measured speed NTL to obtain a corrected value NTLcorr which exhibits the same modulus as said preset value NTLpres and a phase which is opposite to the phase of said preset value NTLpres, in frequency domains situated around a number n of torsional modes of said drivetrain, n being an integer greater than 1.

11. (New) The system as claimed in claim 9, wherein said computation unit and said correction device are incorporated into one and the same computer of a digital type.

12. (New) The system as claimed in claim 9, wherein said correction device is an independent computer.

13. (New) The system as claimed in claim 9, wherein said correction device is an at least partially mechanical means.

14. (New) A process for determining the correction law implemented by the correction device of the process specified under claim 8, wherein the following operations are carried out in succession:

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a) a simulation model of the power train comprising the drivetrain and at least one engine of the machine is formulated theoretically, making it possible to compute a first transfer function for transferring between the speed of rotation of the free turbine, which is filtered with the aid of a predetermined filter, and said preset value NTL_{pres} ;

b) the power train is operated while parameters making it possible to tune said first transfer function are measured;

c) an open-loop transfer function is determined by placing the thus-tuned transfer function of the power train and the transfer function of said filter in series;

d) the transfer function of said filter is subtracted from said open-loop transfer function; and

e) a corrector is formulated as a replacement for said filter, so as to obtain a correction transfer function which is such that the overall transfer obtained by the placing of the latter function and of the transfer function of the power train in series represents said correction law.

15. (New) The process as claimed in claim 14, wherein an increase in gains is effected on said correction law.

REMARKS